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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,739	08/17/2001	Ramzi El-Fekih	9209-2	4591

20792 7590 04/20/2007
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EXAMINER

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ART UNIT	PAPER NUMBER
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2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
2 MONTHS	04/20/2007	PAPER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/932,739
Filing Date: August 17, 2001
Appellant(s): EL-FEKIH ET AL.

D. Scott Moore
For Appellant

EXAMINER'S ANSWER

MAILED
APR 20 2007
GROUP 2600

This is in response to the appeal brief filed 12/20/2006 appealing from the Office action mailed 7/12/2006.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,748,433	YAAKOV et al.	6-2004
6,405,250	LIN et al.	6-2002
5,898,673	RIGGAN et al.	4-1999
6,545,979	POULIN	4-2003
5,831,972	CHEN	11-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 1, 3-7, 16-17, 20-21, 46, 48-52, 61-62, 65-66, 91, 93-97, 106-107, and 110-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaakov (USPN 6,748,433 B1) in view of Lin et al ("Lin") (USPN 6,405,250 B1).

Regarding claims 1, 3, 46, 48, 91, and 93 as shown in Fig. 1, Yaakov teaches a method of managing a service, comprising the steps of:

Obtaining service quality requirements from a client (Service Level Agreement stored in block 30 is signed by the client, col. 4, lines 6-20, and col. 7, lines 39-40).

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Collecting quality data from a network that comprises a plurality of network elements (quality parameter data is collected from a network 10 by RTU 20, received by a Data Collector 28, and used in calculating the OQS, col. 7, lines 16-25, 35-42, and col. 8, lines 7-20), comprising:

Saving the quality of data quality parameter data in a repository (Data collector 28, col. 7, lines 25-38).

Analyzing the quality data (CDRs are built and the values of the collected quality parameters p_i are determined for the route under examination, col. 7, lines 35-38).

Saving the analyzed quality data in the repository (since parameters p_i for the route under examination must be sent to unit 32 for OQS calculation, col. 7, lines 35-44, therefore, the determined parameters p_i for the route examination must be saved in the Data collector 28).

Comparing the collected quality data with the service quality requirements to determine if the service quality requirements are satisfied (since (i) the SLA comprises the selected weights and the selected OQS parameter, col. 4, lines 6-20, (ii) OQS is based on the weight functions and parameters p_i , col. 3, lines 8-25, and (iii) the calculated OQS, which is based on the collected quality parameter data, is compared with the SLA's OQS, col. 7, lines 47-51 and col. 8, lines 21-25, therefore, the collected quality parameter data must be compared with the SLA to determine whether the expected level of quality corresponds to the real level).

Although Yaakov teaches at least one access network element 16 in Fig. 1 which is one of network elements that are configured at an edge of the network (10) and provide access to the

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network (col. 7, lines 5-9), Yaakov fails to teach that the collecting is performed by querying the access network element for the quality data.

As shown in Fig. 1, Lin teaches querying at least one access network element (101) for quality data (the NMS sends a request to get the update of network status from NE 101 and the NE 101 reports to NMS through its associated management agent, col. 3, lines 26-37, 40-46, col. 6, lines 12-23, and col. 8, lines 41-48).

Given the teaching of Lin, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Yaakov to include the querying mechanism of Lin such that the step of querying at least one access network element for the quality data would be included as recited in the claim. The suggestion/motivation to do so would have been to enable the network element to report network status/parameters upon a triggering of an external event, e.g. a polling request (equivalent to querying), as taught by Lin (col. 6, lines 12-19).

Regarding claims 4, 16, 49, 61, 94, and 106, Yaakov teaches that the network (10 in Fig. 1) comprises a VPN (a VPN reads on routes on network 10 in Fig. 1 that carry the client's traffic based on the signed SLA, col. 4, lines 6-20 and col. 7, lines 5-7), wherein the access network element (16 in Fig. 1) comprising one network interface (input port), computing an availability measure for the VPN (the value of P4 – line availability for the route under examination is determined, col. 3, lines 8-26, 43-46, col. 7, lines 25-38), and computing a delay measure for the VPN (the value of P3 – packet delay for the route under examination is determined, col. 3, lines 8-26, 39-42, and col. 7, lines 25-38).

Yaakov does not explicitly teach that the VPN is an ATM VPN that comprises at least one virtual channel. However, Yaakov further mentioned that the network 10 in Fig. 1 is a PSTN (col.7, lines 5-7) and that the PSTN and ATM networks are similar in such a way that the routing is accomplished in a fixed way (col. 4, lines 34-36). Further, an official notice is taken that an ATM VPN comprising at least one VC is well known in the art for its availability as a service provided by many service providers for transporting voice and data components under subscribed quality levels. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin to include an ATM VPN that comprises at least one virtual channel as recited in the claims. The suggestion/motivation to do so would have been to enable the network to accomplish the routing and measuring in a fixed way and to transport the client's voice/data components under subscribed quality levels.

Regarding claims 5, 17, 50, 62, 95, and 107, Yaakov does not teach that the availability/delay measure of the VPN is based on the availability/delay measure of the at least one VC. However, Yaakov teaches that the availability/delay measure for the VPN, e.g. the value of P4 – line availability and the value of P3 – packet delay are determined for the route under examination (col. 3, lines 8-26, 39-46, col. 7, lines 25-38), and the PSTN 10 in Fig. 1 and the ATM network are similar in such a way that the routing is accomplished in a fixed way (col. 4, lines 34-36 and col. 7, lines 5-7). Further, an official notice is taken that an ATM VPN comprising at least one VC is well known in the art for its availability as a service provided by many service providers for transporting voice and data components under subscribed quality

levels. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin to include that the availability/delay measure of the VPN is based on the availability/delay measure of the at least one VC (e.g. one route) as recited in the claims. The suggestion/motivation to do so would have been to enable the network to accomplish the routing and measuring in a fixed way and to transport the client's voice/data components under subscribed quality levels.

Regarding claims 6, 51, and 96, Yaakov teaches computing for at least one route of the VPN (the VPN reads on routes on PSTN 10 in Fig. 1 that carry the client's traffic based on the signed SLA, col. 4, lines 6-20 and col. 7, lines 5-7) under examination a MTTR (MTTR, col. 3, lines 8-26, 43-46, col. 7, lines 25-38) and a MTBSO (reads on MTBF, col. 3, lines 8-26, 43-46, col. 7, lines 25-38).

Regarding claims 7, 52, and 97, Yaakov does not teach that the computed MTTR and the MTBSO (MTTR and MTBF determined for the route under examination, col. 3, lines 8-26, 43-46, col. 7, lines 25-38) are based on the at least one VC. However, Yaakov further mentioned that the PSTN (network 10 in Fig. 1) and ATM networks are similar in such a way that the routing is accomplished in a fixed way (col. 4, lines 34-36). Further, an official notice is taken that an ATM VPN comprising at least one VC is well known in the art for its availability as a service provided by many service providers for transporting voice and data components under subscribed quality levels using ATM VC. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin

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to include an ATM VPN that comprises at least one VC such that the MTTR and the MTBSO would be based on the at least one VC as recited in the claims. The suggestion/motivation to do so would have been to enable the network to accomplish the routing and measuring in a fixed way and to transport the client's voice/data components under subscribed quality levels.

Regarding claims 20-21, 65-66, and 110-111, Yaakov teaches that the network (10 in Fig. 1) comprises a VPN (a VPN reads on routes on network 10 in Fig. 1 that carry the client's traffic based on the signed SLA, col. 4, lines 6-20 and col. 7, lines 5-7), wherein the access network element (16 in Fig. 1) comprising one network interface (input port), and computing an error measure including a number of lost packets (the value of P3 – packet loss for the route under examination is determined, col. 3, lines 8-26, 39-42, and col. 7, lines 25-38).

Yaakov does not explicitly teach that the VPN is an ATM VPN that comprises at least one virtual channel, the computed error measure is for a VC, the determined number of lost cells is for the VC and computing a CLR for the VC. However, Yaakov further mentioned that the network 10 in Fig. 1 is a PSTN (col. 7, lines 5-7) and the PSTN and ATM networks are similar in such a way that the routing is accomplished in a fixed way (col. 4, lines 34-36). Further, an official notice is taken that an ATM VPN comprising at least one VC carrying traffic in cell is well known in the art for its availability as a service provided by many service providers for transporting voice and data components under subscribed quality levels using ATM VC, and computing a CLR for a VC is also well known concept in the art for providing and guarantee QoS in an ATM network. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Yaakov to include an ATM VPN that

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comprises at least one virtual channel and computing a CLR for a VC such that one skilled in the art would arrive at computing error measure including a number of lost cells for a VC and computing a CLR for the VC as recited in the claims. The suggestion/motivation to do so would have been to enable the network to accomplish the routing and measuring in a fixed way and to transport the client's voice/data components under subscribed quality levels.

B. Claims 9, 11-12, 14, 54, 56-57, 59, 99, 101-102, and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaakov (USPN 6,748,433 B1) in view of Lin et al ("Lin") (USPN 6,405,250 B1), and further in view of Riggan et al. ("Riggan") (USPN 5,898,673).

Regarding claims 9, 54, and 99, the combined teaching of Yaakov and Lin does not teach associating an availability threshold with the VPN, and comparing the availability measure for the VPN with the respectively associated availability threshold .

However, in a similar ATM network, as shown in Fig. 5, Riggan teaches associating a bandwidth availability threshold (T) with an ATM network subscribed by a user (step 402, col. 9, lines 19-30) and comparing the bandwidth availability measure (network usage information) for the network with the respectively associated availability threshold (step 410, col. 7, lines 43-52).

Given the teaching of Riggan, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin to include the concept of threshold and comparing the measured value with the threshold such that associating an availability threshold with the VPN, and comparing the availability measure for the VPN with the respectively associated availability threshold would be included as recited in

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the claims. The suggestion/motivation to do so would have been to enable the network management system to monitor whether the user has exceeded the QoS threshold (col. 4, lines 42-45) and for the network to appropriately treat the incoming user's traffic (col. 4, lines 48-60).

Regarding claims 11-12, 14, 56-57, 59, 101-102, and 104, Yaakov teaches that the network (10 in Fig. 1) comprises a VPN (a VPN reads on routes on network 10 in Fig. 1 that carry the client's traffic based on the signed SLA, col. 4, lines 6-20 and col. 7, lines 5-7), wherein the access network element (16 in Fig. 1) comprising one network interface (input port).

The combined teaching of Yaakov and Lin does not explicitly teach that (i) the VPN is an ATM VPN that comprises at least one virtual channel, (ii) computing a bandwidth utilization measure for the VPN based on at least one VC and comparing the bandwidth utilization measure for the VPN with an over utilization threshold and an under utilization threshold.

(i) Regarding the ATM VPN, Yaakov further mentioned that the network 10 in Fig. 1 is a PSTN (col.7, lines 5-7) and that the PSTN and ATM networks are similar in such a way that the routing is accomplished in a fixed way (col. 4, lines 34-36). In addition, an official notice is taken that an ATM VPN comprising at least one VC is well known in the art for its availability as a service provided by many service providers for transporting voice and data components under subscribed quality levels using ATM VC. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin to include an ATM VPN that comprises at least one virtual channel as recited in the claims. The suggestion/motivation to do so would have been to enable the network to

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accomplish the routing and measuring in a fixed way and to transport the client's voice/data components under subscribed quality levels.

(ii) Regarding computing a bandwidth utilization measure for the VPN based on at least one VC and comparing the bandwidth utilization measure for the VPN with an over utilization threshold and an under utilization threshold, Riggan teaches the network management system 206 in Fig. 2 that monitors whether the ATM user has exceeded the agreed-upon bandwidth limit (computing bandwidth utilization measure for the VPN which must be based on at least one VC) and the QoS threshold (comparing the bandwidth utilization measure for the VPN with an over utilization threshold which reads on $>T$ and an under utilization threshold which reads on $<T$). See col. 4, lines 35-55 and Fig. 5, col. 9, lines 16-30, 43-52).

Given the teaching of Riggan, therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin to include the teaching of Riggan as part of the preferred QoS parameters such that computing a bandwidth utilization measure for the VPN based on at least one VC and comparing the bandwidth utilization measure for the VPN with an over utilization threshold and an under utilization threshold as recited in the claims. The motivation/suggestion to do so would have been to appropriately treat the incoming user's traffic according to the bandwidth utilization measurement as taught by Riggan (col. 4, lines 51-59).

C. Claims 18, 63, and 108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaakov (USPN 6,748,433 B1) in view of Lin et al ("Lin") (USPN 6,405,250 B1), and further in view of Riggan et al. ("Riggan") (USPN 5,898,673) and Poulin (USPN 6,545,979 B1).

Regarding claims 18, 63, 108, the combined teaching of Yaakov, Lin, and Riggan does not teach computing a CDV measure and a RTTD measure for the VC.

However, Poulin teaches a method for computing a RTTD (RTD) value which can be used to calculate CDV (CDV) for a VC using an ATM OAM cell with timestamps (col. 1, lines 57-63, col. 2, lines 43-59, col. 4, lines 25-35).

Given the teaching of Poulin, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov, Lin, and Riggan to include the concept of computing a RTTD value to calculate CDV for a VC such that computing a CDV measure and a RTTD measure for the VC would be included as recited in the claims. The motivation/suggestion to do so would have been to enable the system to measure and calculate the RTD value of a VC which can be used to calculate CDV of the VC.

D. Claims 23-24, 68-69, and 113-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaakov (USPN 6,748,433 B1) in view of Chen (USPN 5,831, 972).

Regarding claims 23-24, 68-69, and 113-114, Yaakov teaches that the network (10 in Fig. 1) comprises a VPN (a VPN reads on routes on network 10 in Fig. 1 that carry the client's traffic based on the signed SLA, col. 4, lines 6-20 and col. 7, lines 5-7), wherein the access network element (16 in Fig. 1) comprising one network interface (input port).

Yaakov does not explicitly teach that (i) the VPN is an ATM VPN that comprises at least one virtual channel, and (ii) computing a fault measure for the VPN, determining a number of errored seconds and a number of severely errored seconds for the VPN.

(i) However, regarding the ATM VPN, Yaakov further mentioned that the network 10 in Fig. 1 is a PSTN (col.7, lines 5-7) and that the PSTN and ATM networks are similar in such a way that the routing is accomplished in a fixed way (col. 4, lines 34-36). Further, an official notice is taken that an ATM VPN comprising at least one VC is well known in the art for its availability as a service provided by many service providers for transporting voice and data components under subscribed quality levels using ATM VC. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Yaakov and Lin to include an ATM VPN that comprises at least one virtual channel as recited in the claims. The suggestion/motivation to do so would have been to enable the network to accomplish the routing and measuring in a fixed way and to transport the client's voice/data components under subscribed quality levels.

(ii) Regarding computing a fault measure for the VPN, and determining a number of errored seconds and a number of severely errored seconds for the VPN, in an analogous art, Chen teaches a network management system 15 in Fig. 1 for determining a number of errored seconds and a number of severely errored seconds of a VPN (a VPN reads on SONET network 11 that carries customer's traffic) (col. 3, lines 20-50).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Yaakov to include determining a number of errored seconds and a number of severely errored seconds for a VPN as recited in the claims. The

motivation/suggestion to do so would have been to enable the network management system to determine performance parameters for any path or connection (col. 3, lines 39-42).

(10) Response to Argument

A. Appellants' arguments and Examiner's responses regarding independent claims 1, 46, and 91 are as follows:

i) Appellants' argument: On page 5 of Brief, Appellants cited several court cases.
Examiner's response: Appellants fail to explain specifically how each of the cases cited is related or can be applied to the instant application. Therefore, Examiner deem them as irrelevant.

ii) Appellants' argument: On page 6 of Brief, neither Yaakov nor Lin includes any motivation or suggestion to modify Yaakov.
Examiner's response: The motivation/suggestion to modify Yaakov by applying Lin teaching (i.e., applying the querying mechanism of Lin to the data collecting device RTU 20 of Yaakov) is explicitly provided in Lin on col. 6, lines 12-23 – "...an NE must report a selected set of status information upon triggering of some internal or external events. For example, ...it could respond to polling requests from NMS 120." In other words, at the time of the invention, one skilled in the art would have been motivated to applying the mechanism of Lin to the teaching of Yaakov in order to enable the network element (equivalent to the access unit 16 of Yaakov/claimed access network element) to report network status/parameters (equivalent to

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quality parameter data of Yaakov/claimed quality data) upon a triggering of an external event, e.g., a request from NMS, (equivalent to querying by RTU /claimed querying).

iii) Appellants' argument: One skilled in the art would not be motivated to combine the intrusive data collection design of Yaakov with the passive, non-intrusive design of Lin as such a combination would appear to be duplicative, involve increased expense due to the addition of the Remote Test Units 20 and increased complexity in determining what data is collected via the Remote Test Units 20 and what data is collected at the network elements on the network edge as indicated on page 8 of Brief.

Examiner's response: First of all, neither the intrusive or passive data collection mechanism nor how a querying/data collecting device is connected to the access network element is claimed. Therefore, the argument on whether Yaakov's intrusive mechanism is combinable with Lin's passive mechanism (as asserted by the Appellants).

Secondly, it is respectfully submit that even if the intrusive mechanism was claimed, Appellants' assertion of passive, non-intrusive mechanism of Lin is incorrect. As Lin states:

In order for NMS 120 to gather status information from NE's 101-104, *each NE must either report to NMS 120 voluntarily or response to a request from NMS 120; there is no way for NMS 120 to 'passively observe' the behavior of an NE without the cooperation of the NE.* In other words, as part of its design, an NE must report a selected set of status information upon triggering of some internal or external events," (Lin, col. 6, lines 12-19). *"Each NE, through its associated management agent, reports to NMS 120 a set of parameter values as its operating point"* (col. 3, lines 40-46, emphasis added).

It is clear from above that Lin teaches an intrusive data collection mechanism in which the NE responds to a query/request from the NMS with a selected set of status information. Thus

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the combination of Yaakov's intrusive mechanism (as also agreed by the Appellants) and Lin's intrusive data collection mechanism would be feasible and appropriate.

Thirdly, although Yaakov only teaches that quality data is collected from an access network element by the RTU 20 (col. 7, lines 16-25, 35-42, and col. 8, lines 7-20) but fails to explicitly teach how the collecting is performed, the claimed step of querying at least one access network element for the quality data is explicitly taught in Lin (as shown in Fig. 1, the NMS sends a request to get the update of network status from NE 101 and the NE 101 reports to NMS through its associated management agent, col. 3, lines 26-37, 40-46, col. 6, lines 12-23, and col. 8, lines 41-48). Therefore, the claim limitation is met.

Accordingly, one skilled in the art would have been motivated to apply the query mechanism in an intrusive manner of Lin in the intrusive data collection design of Yaakov in order to enable the network element (equivalent to the access unit 16 of Yaakov/claimed access network element) to report network status/parameters (equivalent to quality parameter data of Yaakov/claimed quality data) upon a triggering of an external event, e.g., a request from NMS, (equivalent to querying by RTU /claimed querying) as suggested by Lin (col. 6, lines 12-23). Such a combination and approach would not be duplicative, expensive, or complex as it would only enhance the effectiveness of quality data collection by enabling quality data to be collected from a network upon a triggering of an external event, i.e., query from a data collecting unit (the existing RTU 20 of Yaakov) sent to the access network element (access unit 16 of Yaakov), thereby freeing up the processing resources of both the data collecting unit and the access network element in an absent of triggering of an external event.

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iv) Appellants' argument: Yaakov's and Lin's designs are fundamentally different as Yaakov RTU 20 is configured for intrusive quality monitoring because it is placed in series in the communication path defined by the access lines of the access unit 16 and, in contrast, Lin's NMS 120 collects status information from NEs in response to queries and is not configured in series in the communication path to intrusively collect status information as indicated on page 8 of Brief.

Examiner's response: Since neither the details of how an access network element is connected to a querying device nor the designs are not claimed, the difference in their designs are irrelevant. Furthermore, it is respectfully submit that the Appellants' assertion on Lin's NMS 120 collecting status information from NEs in response to queries is incorrect. In contrast, Lin clearly teaches that it is the NMS 120 that queries the NE in order to collect status information: "...each NE must ...respond to a request from NMS 120, there is no way fro NMS 120 to "passively observe" the behavior of an NE without the cooperation of the NE" (col. 6, lines 12-16).

v) Appellants' argument: It appears that the Final Action gains its alleged impetus or suggestion to combine the cited references by hindsight reasoning informed by Appellants' disclosure, which is an inappropriate basis for combining references as indicated on page 8 of Brief.

Examiner's response: As stated in section i) above that Lin explicitly provides a suggestion to combine (Lin, col. 6, lines 12-23), therefore, the argument regarding hindsight is irrelevant. In addition, the concept of querying a network element for quality data as part of

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quality data collection is a well known concept in the art and involves only routine skills in the art. Lin reference is provided merely to explicitly prove that the step of querying is not novel.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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April 11, 2007

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